Biol. Calif. Islands. 1967). Thorne (pers. com.) notes *C. californicum* often establishes on exposed slippage slopes in open soil. These two specimens may date from disturbances associated with quarrying in the 1940's. Whether population is relictual or derived from those on Santa Catalina Id. (ca. 34 km away—perhaps by seeds dispersed to mainland by birds or possibly man) is not known. No other intentionally cultivated plants occur near the site. Specimens from Palos Verdes exhibit no noticeable morphological divergence from other known populations. The general area is slated for development though this specific area will not be disturbed. Size of family has dramatically increased from only 1 genus with 2–3 species to 3 genera with 11–13 species with description of *Apacheria chiricahuensis* Mason (Madroño 23:105–108. 1975) and the transfer of *Forsellesia* Greene with ca. 8–9 species from the Celastraceae to Crossosomataceae (Thorne, Aliso 9:171–178. 1978).—JAMES HENRICKSON, Department of Biology, California State University, Los Angeles 90032. (Accepted 2 Apr 79.)

PHYSALIS LOBATA Torr. (SOLANACEAE).—USA, CA, San Bernardino Co., Clark's Pass (T15 R14E S17 SE¼), 25 Nov 1975, *Jones, Ericson, Colin, and Overman 23* (MACF, UC). Common in sink area just E of Clark's Pass, off hwy 62, ca. 47 km E of Twenty-Nine Palms, 580 m; soil primarily decomposed granite. Flowers sporadically all year with rains, peak flowering Sep–Jan, fruits Oct–Mar. Root perennial, numerous seeds. Verified by Robert Thorne, 1976. Other specimens: San Bernardino Co., 8 km N of Clark's Pass, N side Sheep Hole Mtns in alkaline dry lake, 11 Apr 1976, *Shade s.n.* (UCR); San Bernardino Co., Homer Wash, 28 km SE of Essex and 35 km SW of Needles (Stepladder Mtns 15′ Quad.), 6 Apr 1978, *Twitchell and Sanders s.n.* (BLM desert plan collections).

Previous knowledge. Range: KS to TX, S NV, AZ, and N Mex. Nearest records in Maricopa, Pinal, and Pima cos., AZ (Kearney and Peebles, *Arizona Flora.* 1960). (Herbaria consulted: MACF, UCR, RSA). *Diagnostic characters*—fls violet to purple, rarely white, central eye of corolla white, anthers yellow; lvs long-petioled, cuneate at base, sinuately denticulate to dentate.

Significance. New to California; 160 km disjunction. Apparently bird disseminated and establishing westward. Referred by some botanists to *Quincula lobata* Raf., because it differs from other species of *Physalis* by having a violet to purple corolla and a lobed stigma.—C. EUGENE JONES, LARRY J. COLIN, TRUDY R. ERICSON, and R. JOHN LITTLE, Department of Biological Science, California State University, Fullerton 92634; and ANDREW SANDERS, Biology Department, University of California, Riverside 92521. (Accepted 4 Feb 1978.)

NOTES AND NEWS

SEED ABORTION IN *Anagallis arvensis* ON SOUTHEAST FARALLON ISLAND, CALIFORNIA.—Seed mortality in the period between pollination and maturation is difficult to measure and its significance in plant life histories has often been ignored. Because pollination efficiency is usually unknown, seed set is an unsatisfactory measure of pre-maturation seed mortality. For self-pollinating species the problem of pollination efficiency is reduced. If one can count the number of apparently viable seeds shortly after flowering then, by comparing this with the number of seeds matured, one can obtain an estimate of seed mortality.

During the springs and summers of 1974 and 1975, I investigated the pre-maturation seed mortality in *Anagallis arvensis* L. (Primulaceae), a self-pollinating (Fryxell, Bot.

Rev. 23:135–233. 1957), annual species, on Southeast Farallon Island, San Francisco County, California. I counted the number of filled seeds in green capsules about ten days after flowering and compared this with the number of matured seeds in brown capsules about three or more weeks later.

The coast of California has a Mediterranean climate with a winter wet season and a summer dry season. *Anagallis arvensis* flowers from mid-winter (wet season) to early summer (dry season). Because I thought seasonal variation would affect seed mortality, I performed counts in winter and in summer.

Pre-maturation seed mortality (Table 1) rose from −1.2 percent ($t = 0.24$, $n = 24$, $p > 0.1$) in March, 1975, to 18 percent ($t = 2.07$, $n = 24$, $0.1 > p > 0.05$) by June, 1975. There was a simultaneous decrease in the average number of seeds per green capsule from 40 to 30, a decline of 25 percent ($t = 4.55$, $n = 29$, $p < 0.001$). Total seed production over this period fell by 39 percent, of which somewhat less than half was due to seed mortality and the remainder either to a decline in ovules initiated or to mortality before my counts. Counts from July, 1974, are consistent with these trends of increase in seed mortality and decrease in seed set through the season. They suggest a conservative estimate for July seed mortality of 38 percent ($t = 5.93$, $n = 25$, $p < 0.001$). When data for the two years are combined, there is a suggested decline in seed production of up to 58 percent ($t = 13.27$, $n = 26$, $p < 0.001$), about half of which was due to pre-maturation seed mortality.

TABLE 1. SEED COUNTS FOR *Anagallis arvensis* ON SOUTHEAST FARALLON ISLAND, CALIFORNIA.

Date	Capsule Color	n	Average Number of Seeds per Capsule	s_e
23 Mar 1975	Green	10	39.9	1.95
	Brown	14	40.4	1.15
4 Jun 1975	Green	19	29.9	1.21
	Brown	5	24.6	1.96
18 Jul 1974	Green	13	26.8	1.02
19 Jul 1974	Brown	12	16.8	2.28

Two observations suggest that the decline in water availability was important in effecting these trends. First, the decline in rainfall was the most obvious seasonal change. Second, *Anagallis arvensis* acts as an annual on the islands, yet a late summer drizzle in 1974 resulted in revival and prolonged life of dying plants, a situation not observed during summers without precipitation.

Pre-maturation seed mortality is variable and high, and I suggest that seasonal variation in resource supply (in this case water) may be important in causing this mortality.

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